Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Proposed/Final Federally enforceable permit No. VF-04-003
ARKEMA, Incorporated
CARROLLTON, KY.
January 14, 2005
JAMES A. NEAL, REVIEWER
KYEIS ID #: 021-041-00002
AI # 690

SOURCE DESCRIPTION:

The ARKEMA, Incorporated, Carrollton Plant, is a batch specialty chemical manufacturing facility. Specialty chemicals produced at the plant include plastic stabilizers, foam catalysts, industrial catalysts, glass coatings, and wastewater treatment. It is a major source of criteria pollutants. The permittee has submitted a permit application to modify the B-48 and B-05 areas. This permit will allow the plant to increase the production capacity of stabilizers made in the B-48 production area and increase the MBTC/DBTC capacity in the B-05 production area. The increased production in B-48 and B-05 will increase the PTE for the two process buildings. These areas currently have synthetic minor limits to preclude PSD. The increase from the current modification will be of 34.2 TPY of VOC. To offset this increase, the site is discontinuing the production of MBTC via the heptane process and the production of solvent based products in B-48, taking a limit of maximum concentration of 3,000 ppm DBE in MBTC raw materials, and taking production limits. The implementation of these changes will keep the emissions from these areas below the PSD significant emission rates. In order to preclude the applicability of 401 KAR 51:017, Prevention of significant deterioration (PSD), the source is requesting a production limit on plastic stabilizers of 80,000,000 pounds per year and a limit on Monobutyltin Trichloride (MBTC) production limit of 21,000,000 pounds per year. As part of this modification, the site agrees to discontinue the production of solvent-based products in process building 48. All these conditions are put in the permit so that the areas B-05 and B-48 will continue to stay below the VOC PSD significant emission rate of 40 TPY. A complete list of non-solvent based products is included in the permit application. Emission changes are noted in Table 1, below. Reactors, boilers, blenders, centrifuges, condensers/heat exchanges, decanters, stills, and organic and inorganic storage tanks support this production. A pilot plant is used to scale up production and to resolve production glitches. Production areas, by building number, are noted as follows: B03, B05, B06, B22, B27, B28, B29, B32, B33, B38, B39, B46, B48, B-52, B-55, and B-67.

Below is a discussion of the production and air pollution control that occurs in B-48 and B-5:

B-48 Area:

Building No./ Prod. Area	ARKEMA Description	Control Equipment
B48	This area is dedicated to the production of butyltin, octyltin, and methyltin stablizers. Five production lines are in operation. A typical production line includes reactor, receiver, split tanks, shared hold tank, and process filter. Five production lines are normally used to produce stabilizer. Materials charged to reactor may include monobutyltin trichloride, dibutyltin trichloride, sodium sulfide, 2-ethylhexyl mercapto acetate, 2-mercaptoethyl thallate, n-dodecylmercapto acetate, and sodium hydroxide. Products include one or more complex organotin molecules. The product phase is separated after adding a surfactant, followed by heating to drive out water. The mass is diluted, filtered, and pumped to drums or totebins.	Raw material tanks and reactor vacuum pumps discharge to caustic and oxidizing scrubber system, this system controls organic tin and odors (sulfur compounds). LDAR

B-5 Area:

B05	This area consist of three production lines: monbutyltin (anhydrous); monobutyltin chloride; and (dry)/MIBK/trifluoroacetic acid are vacuum charged, mixed, filtered, and packaged. Butyl crudes and tin tetrachloride are reacted in a vacuum still. After reaction, it is vacuum distilled to separate the monobutyltin trichloride and dibutyltin dichloride. Monobutyltin trichloride is cut and packages into totes, and dibutyltin dichloride is stored in a tank.	LDAR (Source modification of USEPA version)

COMMENTS:

The modification/construction will increase potential emissions of the following air pollutant(s):

VOC PSD Applicability (Compliance with 401 KAR 51:017)

Process Building	Significant Net Emission Rate (TPY)	Change in Emissions (tpy)
Stabilizer Capacity increase in B-48 (Future Potential)	*	16.9
MBTC/DBTC Capacity increase in B-05 (Future Potential)	*	17.3
Discontinuation of Solvent based products in B-48 (Actual Emissions)	*	-4.4
Discontinuation of MBTC/DBTC via Heptane process in B-48 (Actual Emissions)	*	-56.4

*Total VOC increases are negative and the B-05 and B-48 areas will stay below the 40 TPY significance level.

Emission factors are based on AP-42, stack tests, material balance, and information in the State's KYEIS inventory. A modified USEPA version of the LDAR spreadsheet is used to estimate fugitive VOC and HAP emissions.

As of the Federal Register notice dated June 19, 2000, the USEPA classified this region attainment for the 1-hour ozone standard.

The application was logged complete November 18, 2004.

Emission rates of VOCs are based on the maximum production rate for the respective production area considering that more than one product may be produced at the same time and in the same production area. HAP emissions are a function of what product is being produced in the respective production area at any given time.

Applicable regulations

Regulation 401 KAR 59:010, *New process operations,* Classification date July 2, 1975
Regulation 401 KAR 61:020, *Existing process operations*, Classification date July 2, 1975
Regulation 401 KAR 59:005, *General provisions*, applicable regulations provide specific classification dates.
Regulation 401 KAR 61:005, *General provisions*, applicable regulations provide specific classification dates
Regulation 401 KAR 63:010, *Fugitive emissions*, Classification date is the effective date of this administrative regulation
Regulation 401 KAR 61:060, *Existing Source Standard for Solvent Operations*
Regulation 401 KAR 53:010, *Ambient Air Quality Standards (for Hydrogen sulfide)*

Regulations not applicable:

Regulation 401 KAR 51:017, *Prevention of significant deterioration of air quality*

Regulation 401 KAR 60:005, Section 3(uu). Incorporating by reference 40 CFR 60.480 to 60.489 (Subpart VV), *Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic*

Chemicals Manufacturing Industry. [This Subpart does not apply to Emission Point (TE48) because this Emission Unit (Production Area B-48) does not meet the definition of a process unit in the synthetic organic chemical manufacturing industry. Production Area B-48 does not produce as an intermediate or final product any chemical listed in 40 CFR 60.489.]

Regulation 401 KAR 63:002, Section 3(c). Incorporating by reference 40 CFR 63.100 to 63.106 (Subpart F), *National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry*.

Regulation 401 KAR 63:002, Section 3(t). Incorporating by reference 40 CFR 63.680 to 63.698 (Subpart DD), *National Emission Standards from Off-Site Waste and Recovery Operations*.

Regulation 401 KAR 57:040, *Equipment leaks of benzene*. Incorporating by reference 40 CFR Part 61, Subpart J (40 CFR 61.110 to 61.112), *National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene*. [The emission standards provided in this Subpart do not apply to Emission Points (TE48) because this Emission Unit (Production Area B-48) is exempt per 40 CFR 61.110(c)(2). Production Area B-48 does not produce or use 1,000 megagrams or more of benzene per year.]

Regulation 401 KAR 57:035, *National emission standard for equipment leaks (fugitive emission sources)*. Incorporating by reference 40 CFR Part 61, Subpart V (40 CFR 61.240 to 61.247), National *Emission Standard for Equipment Leaks (Fugitive Emission Sources*. [The Subpart does not apply to Emission Points (TE48) because this Emission Unit (Production Area B-48) is not subject to 40 CFR 61, Subpart J as described above.]

Regulation 401KAR 59:305, *New synthetic organic chemical manufacturing industry equipment leaks*.

401 KAR 63:002, Section 3(c). Incorporating by reference 40 CFR 63.100 to 63.106 (Subpart F), *National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry.* [This Subpart does not apply to this Emission Unit (Production Area B-48). Production Area B-48 does not produce as an intermediate or final product any chemical listed in 40 CFR 63, Subpart F, Table 1. This declaration of non-applicability also applies to 401 KAR 63:002, Sections 3(b) and (c) incorporating 40 CFR 63, Subparts G and H.]

Regulation 401 KAR 60:005, Section 3(l). Incorporating by reference 40 CFR 60.110b to 60.117b (Subpart Kb), *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984*.

EMISSION AND OPERATING CAPS DESCRIPTION:

Area	Process/Equipment	Capacity limit
48	RX-48, TK-48 and PF-48	To preclude the applicability of Regulation KAR 51:017, the production of plastic stabilizers will be limited to 80,000,000 pounds per year. Production of MBTC via heptane process and solvent-based stabilizers will be discontinued.
05	RX-05, TK-05, WT-05, CO-05 and DT-05.	To preclude the applicability of Regulation KAR 51:017, MBTC production will be limited to 21,000,000 pounds per year and the concentration of Dibutyl Ether (DBE) will be limited to 3,000 ppm or

		less in the butyl crudes raw material.

OPERATIONAL FLEXIBILITY:

Please refer to the operating permit conditions.

PERIODIC MONITORING:

Maintain and operate air pollution control equipment in accordance with the manufacture's specifications. Perform the monitoring and recordingkeeping specified under **Subsections B.4.** and **B.5.** or **B.7.**

Public Notice:

The public notice was published in *The News Democrat* on December 8, 2004. The public notice expired 30 days from the published date. No comments were received from the public or the source.

Credible Evidence:

This permit contains provisions that require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.